

ENGINEERING DIRECTIVE

Thomas F. Beaulieu
CHIEF ENGINEER

**CONFIRMATION OF ACCEPTABLE BRIDGE DECK OVERLAY THICKNESSES ON
ALL STATE AND INTERSTATE HIGHWAY RESURFACING PROJECTS INVOLVING
BRIDGES**

The purpose of this Engineering Directive is to formally notify Department Engineering Personnel of the requirement to establish the maximum permissible bituminous concrete overlay thickness on all State or Interstate Highway bridges within the project limits during the design phase of all resurfacing projects. Conformance with this Directive is essential to prevent the application of additional wearing surface overlay layers in excess of what was anticipated during the bridge's original design. This build up of bituminous concrete would add to the bridge's dead load which would reduce its live load carrying capacity. In addition, conformance with this Directive will ensure that the resurfacing project will improve the load carrying capacity of those bridges that already have an excessive thickness of bituminous concrete overlay.

At the onset of the design phase of resurfacing projects involving State or Interstate bridges, the design engineer shall utilize the following procedure to determine the required depth of scarifying and the acceptable overlay thickness:

1. The Design Engineer shall obtain actual wearing surface thickness measurements for each span of each bridge to be overlaid. The measurements shall be taken at each curb line and at the crown line. For spans less than 30 meters the measurements will be taken at midspan and at each span end. For spans in excess of 30 meters, additional measurements shall be obtained at the span quarter points. The measurements shall be taken by drilling through the bituminous concrete wearing surface to the level of the top of the concrete deck using cordless drills. After the thickness measurements are taken, the drill holes shall be filled with joint sealer.
2. The Design Engineer shall forward these measurements to the Bridge Engineer with a request for a determination of the depth of required scarifying, the maximum safe overlay thickness and the recommended replacement material. The Bridge Engineer, in consultation with the Research and Materials Engineer and the Pavement Design Engineer, shall respond to the Design Engineer with the recommended depth of scarifying, proposed wearing surface material and the thickness of the proposed overlay. The bituminous concrete job mix formula and

the trial batches for cement concrete overlay job mixes shall be approved by the Research and Materials Engineer prior to placement. The Bridge Engineer's objective will be to maximize the live load carrying capacity of the bridges in question.

3. The Design Engineer will specify the required scarifying and overlay depths in the contract documents for each bridge contained in the project.